AMENDMENTS:

TO THE SPECIFICATION:

Please replace the paragraph under Summary Of The Invention on Page 3 with the following:

The present invention is generally directed to an invert emulsion drilling fluid that is formulated using a biodegradable surfactant. As disclosed below, such a fluid includes: an oleaginous continuous phase, a non-oleaginous discontinuous phase, a surfactant that is a fatty acid ester of diglycerol or triglycerol, and a weighting agent. In one such illustrative embodiment, the surfactant is a di-fatty acid ester of diglycerol in which the fatty acid has the formula RCO_2H and R is an alkyl or alkenyl ~~akenyl~~ having 10 to 20 carbon atoms. Alternatively, the surfactant is a di-fatty acid ester of triglycerol in which the fatty acid has the formula RCO_2H and the R is an alkyl or alkenyl ~~akenyl~~ having 10 to 20 carbon atoms. More preferably the surfactant is selected from polyglyceryl-2 diisostearate or polyglyceryl-3 diisostearate or mixtures and combinations of these. One of skill in the art should appreciate that the oleaginous fluid may be selected from a wide variety of suitable materials. Examples include: diesel oil, mineral oil, synthetic oil, ester oils, glycerides of fatty acids, aliphatic esters, aliphatic ethers, aliphatic acetals, or other such hydrocarbons and combinations and mixtures of these and similar fluids. In a similar manner, the non-oleaginous phase may be selected from a wide variety of suitable materials. Examples of which include: fresh water, sea water, brine, aqueous solutions containing water soluble organic salts, water soluble alcohols or water soluble glycols or combinations and mixtures of these and similar fluids. The weighting agent component of such an illustrative drilling fluid can be either a water-soluble weighting agent or a water insoluble weighting agent or combinations and mixtures of these two. In one illustrative embodiment, the water insoluble weighting agent is selected from barite, calcite, mullite, gallena, manganese oxides, iron oxides, or combinations and mixtures of these and similar solid materials used to weight drilling fluids. In another illustrative embodiment, the water soluble weighting agent is selected from water soluble salts of zinc, iron, barium, calcium or combinations and mixtures of these in aqueous solutions used to add weight to drilling fluids.

Please replace the last paragraph on page 6 with the following:

Typically prior art emulsion compounds are difficult or are very slow to biodegrade. However, it has been found that fatty acid esters of diglycerol or triglycerol function as surfactants that are readily biodegrable. In one preferred embodiment of the present invention, the surfactant is a di-fatty acid ester of diglycerol in which the fatty acid has the formula RCO_2H and the R is an alkyl or alkenyl ~~akenyl~~ having 10 to 20 carbon atoms. Alternatively, the surfactant is a di-fatty acid ester of triglycerol in which the fatty acid has the formula RCO_2H and the R is an alkyl or alkenyl ~~akenyl~~ having 10 to 20 carbon atoms. As illustrated in the examples below, it is especially preferred that the surfactant is a polyglyceryl-2 diisostearate or polyglyceryl-3 diisostearate or mixtures of these. A suitable emulsifier within the scope of the present invention should be capable of stabilizing the invert emulsion under conditions of heat aging. The amount of the emulsifier needed to form a stable invert emulsion can be determined by systematically adjusting the amount of emulsifier added and testing the stability of the fluid. Preferably the amount of emulsifier should be from about 1 to about 20 pounds per barrel (ppb) and more preferably from about 8 to about 12 ppb of the drilling fluid.

Please replace the last paragraph on page 24 with the following:

In view of the above disclosure, one of ordinary skill in the art should understand and appreciate that one illustrative embodiment of the present invention includes an invert emulsion drilling fluid that is formulated to include: an oleaginous continuous phase, a non-oleaginous discontinuous phase a surfactant that is a fatty acid ester of diglycerol or triglycerol, and a weighting agent. In one such illustrative embodiment, the surfactant is a di-fatty acid ester of diglycerol in which the fatty acid has the formula RCO_2H and the R is an alkyl or alkenyl ~~akenyl~~ having 10 to 20 carbon atoms. Alternatively, the surfactant is a di-fatty acid ester of triglycerol in which the fatty acid has the formula RCO_2H and the R is an alkyl or alkenyl ~~akenyl~~ having 10 to 20 carbon atoms. More preferably the surfactant is selected from polyglyceryl-2 diisostearate or polyglyceryl-3 diisostearate or mixtures and combinations of these. One of skill in the art should appreciate that the oleaginous fluid may be selected from a variety of suitable fluids known in the art, including diesel oil, mineral oil, synthetic oil, ester oils, glycerides of fatty acids, aliphatic esters, aliphatic ethers, aliphatic acetals, or other such hydrocarbons and

combinations and mixtures of these and similar fluids. In a similar manner, the non-oleaginous phase may be selected from a wide range of suitable fluids known in the art including fresh water, sea water, brine, aqueous solutions containing water soluble organic salts, water soluble alcohols or water soluble glycols or combinations and mixtures of these and similar fluids. The weighting agent component of such an illustrative drilling fluid can be either a water soluble weighting agent or a water insoluble weighting agent or combinations and mixtures of these two. In one illustrative embodiment, the water insoluble weighting agent is selected from barite, calcite, mullite, gallena, manganese oxides, iron oxides, or combinations and mixtures of these and similar solid materials used to weight drilling fluids. In another illustrative embodiment, the water soluble weighting agent is selected from water soluble salts of zinc, iron, barium, calcium or combinations and mixtures of these in aqueous solutions used to add weight to drilling fluids.

Please replace the first full paragraph on page 25 with the following:

It should further be appreciated that another illustrative embodiment of the present invention includes an invert emulsion drilling fluid formulated to include: an oleaginous continuous phase, a non-oleaginous discontinuous phase, a biodegradable surfactant including a di-fatty acid ester of diglycerol, and a weighting agent. In such instances, the fatty acid preferably has the formula RCO_2H in which R is an alkyl or alkenyl ~~akenyl~~ having 10 to 20 carbon atoms. More preferably the di-fatty acid ester of diglycerol is a polyglyceryl-2 diisostearate.

Please replace the last paragraph on page 25 with the following:

Yet another illustrative embodiment of the present invention includes an invert emulsion drilling fluid that includes: an oleaginous continuous phase, a non-oleaginous discontinuous phase, a biodegradable surfactant including a di-fatty acid ester of triglycerol in which the fatty acid has the formula RCO_2H and R is an alkyl or alkenyl ~~akenyl~~ having 10 to 20 carbon atoms, and a weighting agent. It is preferred that the di-fatty acid ester of triglycerol is polyglyceryl-3 diisostearate.

Please replace the first paragraph on page 26 with the following:

It will also be appreciated by one or ordinary skill in the art that a present illustrative embodiment of the present invention includes a method of formulating an invert emulsion

drilling fluid so as to exhibit the characteristics of the above described fluids. One such illustrative method, includes mixing an oleaginous fluid, a non-oleaginous fluid, a biodegradable surfactant and a weighting agent to form and invert emulsion. The biodegradable surfactant includes a fatty acid ester of diglycerol or triglycerol in amounts sufficient to form an invert emulsion in which the oleaginous fluid is the continuous phase and the non-oleaginous fluid is the discontinuous phase. In one preferred illustrative embodiment the fatty acid ester is a di-fatty acid ester of diglycerol in which fatty acid has the formula RCO2H and R is an alkyl or akenyl ~~akenyl~~ having 10 to 20 carbon atoms. In another preferred illustrative embodiment, a di-fatty acid ester of triglycerol is utilized in which the fatty acid has the formula RCO2H and R is an alkyl or alkenyl ~~akenyl~~ having 10 to 20 carbon atoms. The oleaginous fluid is preferably selected from diesel oil, mineral oil, synthetic oil, ester oils, glycerides of fatty acids, aliphatic esters, aliphatic ethers, aliphatic acetals, or other such hydrocarbons and combinations and mixtures of these and similar fluids Similarly, the non-oleaginous phase is preferably selected from fresh water, sea water, brine, aqueous solutions containing water soluble organic salts, water soluble alcohols or water soluble glycols or combinations and mixtures of these and similar fluids. In one preferred illustrative embodiment, the weighting agent is either a water soluble weighting agent or a water insoluble weighting agent or combinations and mixtures of the two. In such cases, the water insoluble weighting agent is preferably barite, calcite, mullite, gallena, manganese oxides, iron oxides, or combinations and mixtures of these and similar weight materials while the water soluble weighting agent is preferably selected from water soluble salts of zinc, iron, barium, calcium or combinations and mixtures of these and similar materials.

Please replace the last paragraph on page 26 with the following:

It should also be appreciated that the present invention encompasses a method of drilling a subterranean hole with the invert emulsion drilling fluids as described above, such an illustrative method includes: mixing an oleaginous fluid, a non-oleaginous fluid, a biodegradable surfactant, and a weighting agent to form an invert emulsion, and drilling said subterranean hole using said invert emulsion as the drilling fluid. It is preferred that the biodegradable surfactant is a fatty acid ester of diglycerol or triglycerol that is present in amounts sufficient to form an invert emulsion in which the oleaginous fluid is the continuous phase and the non-oleaginous fluid is

the discontinuous phase. In a more preferred embodiment, the fatty acid ester of diglycerol or triglycerol is a di-fatty acid ester of diglycerol in which the fatty acid has the formula RCO_2H and the R is an alkyl or alkenyl ~~akenyl~~ having 10 to 20 carbon atoms. Alternatively, the fatty acid ester of diglycerol or triglycerol may be a di-fatty acid ester of triglycerol in which fatty acid has the formula RCO_2H and the R is an alkyl or akenyl ~~akenyl~~ having 10 to 20 carbon atoms. As disclosed above, the oleaginous fluid is preferably selected from diesel oil, mineral oil, synthetic oil, ester oils, glycerides of fatty acids, aliphatic esters, aliphatic ethers, aliphatic acetals, or other such hydrocarbons and combinations and mixtures of these and similar fluids. The non-oleaginous phase is preferably selected from fresh water, sea water, brine, aqueous solutions containing water soluble organic salts, water soluble alcohols or water soluble glycols or combinations and mixtures of these and similar fluids. The weighting agent can be a water-soluble weighting agent or a water insoluble weighting agent or combinations of the two. Preferably the water insoluble weighting agent is selected from barite, calcite, mullite, gallena, manganese oxides, iron oxides, or combinations and mixtures of these and similar weighting agents. While the water soluble weighting agent is selected from water soluble salts of zinc, iron, barium, calcium or combinations and mixtures of these and similar weighting agents.

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Please replace the last paragraph on page 27 with the following:

Also encompassed is a method of drilling a subterranean well with an invert emulsion drilling fluid, said method comprising: mixing an oleaginous fluid, a non-oleaginous fluid, a biodegradable surfactant, and a weighting agent to form an invert emulsion, circulating said invert emulsion within said subterranean well and drilling said subterranean well using said invert emulsion as the drilling fluid. In such an illustrative embodiment, the biodegradable surfactant includes a fatty acid ester of diglycerol, in which the fatty acid has the formula RCO_2H and R is an alkyl or alkenyl ~~akenyl~~ having 10 to 20 carbon atoms. The biodegradable surfactant is in amounts sufficient to form an invert emulsion in which the oleaginous fluid is the continuous phase and the non-oleaginous fluid is the discontinuous phase. It is preferred that the fatty acid ester of diglycerol is a di fatty acid ester and more preferably the fatty acid ester of diglycerol is polyglyceryl-2 diisostearate.

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Please replace the first full paragraph on page 28 with the following:

Another illustrative embodiment includes a method of drilling a subterranean well with an invert emulsion drilling fluid, in which the method includes: mixing an oleaginous fluid, a non-oleaginous fluid, a biodegradable surfactant, and a weighting agent to form an invert emulsion, circulating said invert emulsion within said subterranean well and drilling said subterranean well using said invert emulsion as the drilling fluid. As part of the illustrative method, the biodegradable surfactant includes a fatty acid ester of triglycerol having the formula RCO_2H in which the R is an alkyl or alkenyl ~~akenyl~~ having 10 to 20 carbon atoms. The biodegradable surfactant is in amounts sufficient to form an invert emulsion in which the oleaginous fluid is the continuous phase and the non-oleaginous fluid is the discontinuous phase. It is preferred that the fatty acid ester of triglycerol is a di-fatty acid ester and more preferably the fatty acid ester of triglycerol is polyglyceryl-3 diisostearate.

Please replace the Abstract with the following:

An invert emulsion drilling fluid includes an oleaginous continuous phase; a non-oleaginous discontinuous phase; a biodegradable surfactant including a di-fatty acid ester of triglycerol; and a weighting agent. It ~~si~~ is preferred that the fatty acid have the formula RCO_2H in which R is an alkyl or alkenyl ~~akenyl~~ having 10 to 20 carbon atoms. The oleaginous fluid is selected from diesel oil, mineral oil, synthetic oil, ester oils, glycerides of fatty acids, aliphatic esters, aliphatic ethers, aliphatic acetals, or other such hydrocarbons and combinations of these and similar compounds. The non-oleaginous phase is selected from fresh water, sea water, brine, aqueous solutions containing water soluble organic salts, water soluble alcohols or water soluble glycols or combinations of these and similar compounds. The weighting agent is any suitable weighting agent and is preferably selected from water insoluble weighting agents such as barite, calcite, mullite, gallena, manganese oxides, iron oxides, or combinations of these or water soluble weighting agents such as water soluble salts of zinc, iron, barium, calcium or combinations of these and similar compounds.